COCONINO COUNTY — Department of Community Development
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MEMORANDUM OF CODE COMPLIANCE

DATE: May 5, 2006

TO: Contractors, Developers, Owner Builders, and Manufactured Home Dealers and Installers

FROM: John Farnol – Chief Building Official

REGARDS: Code requirements for Battery Storage Sheds with photovoltaic electric systems and Pump Houses.

This correspondence is to explain the code requirements for accessory buildings that are used for providing utility electric power or water service at parcels of land that are off of the electric power grid, where the water is hauled or provided by a well and other locations with similar installations. The code requirements are as follows:

BATTERY STORAGE SHEDS

Structures that support and contain electric equipment in conjunction with solar photovoltaic electric systems shall be considered to be part of the primary electric power supply for the parcel of land and shall be built to code as permanent.

Battery storage sheds with the associated photovoltaic electric systems whether attached to the primary structure or detached will require a building permit regardless of the size of the shed. Battery storage sheds that are attached to a residence or any primary structure shall be built of fire-resistive construction. The shed shall be provided with adequate hi and low ventilation sized and installed according to nationally excepted standards. Batteries located in a garage shall be installed in a separate room built of fire-resistive construction. The batteries shall be installed on a platform 18 inches above the garage floor.

The battery storage shed shall be placed on a permanent foundation preferably of a concrete turndown with a slab. The turndown footings shall extend 18 inches minimum into undisturbed soil or 30 inches when attached to the residence and the footings shall be reinforced according to County requirements. When the shed is constructed on a wood floor the foundation shall be constructed on a stem wall or on permanent piers, with footing depths as indicated above. When the shed is constructed on a wood floor the floor framing members including girders, floor joists and floor sheathing shall be designed to support a 125 pounds per square foot uniform live load.

As an exception sheds that are 120 square feet maximum may be grade set on ground supported pressure treated girders. The structure shall be elevated so no wood is within 6 inches to grade unless the wood is pressure treated. The structure shall be anchored to the ground with at least 6 manufactured home type anchors. The floor framing shall be designed to support a 125 pounds per square foot uniform live load. The electric wiring penetrating out of the ground and into the building shall be installed in an approved liquid tight flexible conduit method. No solar photovoltaic array panels shall be allowed on the roof of these structures.

Solar photovoltaic array panels when self standing on metal pedestals, the pedestals shall be supported on concrete pilon footings 8 inches wide by 18 inches deep minimum cast into the ground, properly anchored or embedded into a pilon footing 8 inches wide by 30 inches deep minimum. When the panels are supported on a roof, the roof framing shall be designed to carry the additional load of the panels as well as the design snow live load. The panels on the roof shall be adequately anchored and installed with proper roofing methods to maintain the waterproof integrity of the roofing. When the panels are supported on the roof, the building shall be built on a permanent concrete foundation according to code.

Battery storage sheds shall have the electric system grounded by a uffer ground in the footing or by a ground rod when the structure is grade set. Electric equipment such as panel boards, inverters, disconnects and batteries shall be provided with working clearances according to code.

PUMP HOUSES

Structures that are 64 square feet maximum in area used to contain pumping equipment and associated electric equipment for a domestic potable water system at a home site, the structure may be built and installed without any additional permits. The pump house and the electric will be inspected as part of the water service for the construction of a home or the installation of a manufactured home.

These structures may be placed on a slab on grade with a perimeter turndown of 8 inches by 8 inches below grade or grade set with a wood floor of pressure treated framing materials. Pump houses that are larger than 64 square feet shall require an additional permit and be built on a permanent foundation according to County requirements.

The shed shall be insulated and exposed water pipe shall be insulated and protected from freezing by approved methods. The insulation shall be of unfaced insulation batts in the walls and ceiling. Also, it is recommended that the shed be provided with electric heating.

Electric installations shall be by approved wiring methods. Pump houses where two or more electric circuits are installed shall have the electric system grounded by a ground rod or a uffer ground. The electric wiring penetrating out of the ground and into the building shall be installed in an approved liquid tight flexible conduit method.

NOTE

Sheds and pump houses that are built on a permanent foundation and not grade set do not require a flexible electric connection.

When insulation is used in a structure then the walls and ceiling shall be covered with drywall or other approved material.

Batteries located in sheds or locations that are subject to freezing or when the battery charge falls below minimum accepted levels, may cause the battery life to be shortened or void any warranty for the batteries. Back-up charging may be required per manufacturer’s specifications.

Permits for Battery Storage Sheds or Pump Houses will only be issued with the solar photovoltaic electric equipment or the water supply equipment as a complete system permit. Electric power installations will not be allowed on vacant land, unless there is a legitimate well.